

**Mū'olea Community  
Work Status Report 2009-2013**



A summary of the collaboration between  
The Nature Conservancy and  
Nā Mamo O Mū'olea

Made possible through funding of the  
2009-2013 TNC-NOAA Coral Reef Conservation Program (CRCP)  
Cooperative Agreement and the Harold K.L. Castle Foundation

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## **Timeline of Major Accomplishments**

2008-2013	Conservation Action Plan Implementation
2008-present	Annual 'Opihi Monitoring
2009-present	Annual Hāna Limu Festival
2010 & 2012	Reef & Reef Fish Monitoring
2012	Traditional Ecological Knowledge Workshop
2012-present	Maui Nui Community Managed Makai Area Learning Network
2013	Strategic Planning & Information Kiosk

## **Overview**

As a non-profit organization, Nā Mamo O Mū'olea (NMOM) has implemented dozens of conservation actions on behalf of the community at Mū'olea since the Trust for Public Lands, National Oceanic and Atmospheric Administration (NOAA), and the County of Maui purchased the 70 acre coastal property nearly 10 years ago – with the agreement that the community would manage the lands. NMOM was formed for the purposes of managing the lands, waters, resources, and community use of the area. NMOM's mission is "to perpetuate traditional ahupua'a management of the Mū'olea ahupua'a and to restore and maintain Mū'olea's natural, cultural, scenic, historic and marine resources for the benefit, education and enjoyment of our community and future generations."

The Nature Conservancy's (TNC) Maui Marine Program started working with NMOM in 2008 when the community requested assistance in creating a marine conservation action plan. TNC subsequently received funding from NOAA's Coral Reef Conservation Program (CRCP) to support NMOM's goal to serve as a model of restoring sustainable ahupua'a management in east Maui. NMOM approved the Mū'olea 2 year Marine Resources Action Plan in 2009 that the fishing committee worked on in 2008; projects were then implemented to understand and increase the abundance of marine resources, keeping in mind to continuously involve the community and youth in the efforts. The activities described below were accomplished by NMOM under this Marine Action Plan with the support of TNC and NOAA.

## **'Opihi Monitoring**

### *Purpose and Scope*

In 2009, NMOM prioritized 'opihi as their top species of concern and focused efforts on understanding and managing 'opihi at Mū'olea. 'Opihi abundance throughout the state has been steadily decreasing due to over-harvesting. To support NMOM's efforts, TNC convened Mū'olea fishermen, scientists, agencies, and other resource managers to develop standardized monitoring protocols for 'opihi. This effort led to the creation of the 'Opihi Partnership and an 'opihi monitoring technique, which has been in use at Mū'olea since

2008, as well as dozens of other sites across the archipelago. The habitat and population factors are based on traditional Hawaiian knowledge. A science application quantifies the observations so that the method is replicable. The survey data are intended to give community managers information about the status of their resources in the intertidal zone. To promote this community-based method of monitoring, TNC and NMOM coordinate annual community-led 'opihi monitoring events in Mū'olea with volunteers.



### *Methods*

Survey sites are selected based on three habitat types: boulder, cliff and papa. Mū'olea has numerous transect sites along its one mile of coastline that can only be surveyed during low wind, surf and tide conditions. The surveys are conducted along a transect chain laid perpendicular to the shoreline in a half meter swath. Survey teams count and size three species of 'opihi, identify and count other invertebrates including hā'uke'uke and pūpū, quantify the type and amount of limu, and describe the environmental conditions. Each survey takes about 30 minutes to complete. Since working in hazardous conditions can make 'opihi monitoring difficult, a "visual" survey method was designed to cut down survey time by estimating rather than measuring 'opihi and habitat factors.

### *Surveys*

- Monitoring in Mū'olea started in 2008 with 17 participants.
- In May 16-17, 2009 there were 6 participants and 13 completed surveys.
- From July 24-25, 2009, there were 11 participants and 5 surveys were completed.
- In 2010, TNCs Maui Marine Program Coordinator, Roxie Sylva began coordinating and leading surveys with NMOM's President Hank Eharis and Vice President Walter Pu.
- From May 7-8, 2010, there were 14 participants and 17 transects completed.
- On June 3, 2011, Hāna's Alu Like program participated, with children from ages four to eighteen. There, the group learned the importance of intertidal species in the Hawaiian



culture, its identification, and methods of monitoring those species. On June 4<sup>th</sup>, the team was joined by past Kamehameha School intern (Wailena Pu) and family, as well as a rare Hawaiian Monk Seal. During the two days of monitoring, 20 participants completed 17 transects.

- On July 1, 2011, 8 participants completed 15 surveys.
- On June 22-23, 2012, there were 16 participants, including TNC Marine Fellow Leilani Warren and Ma Ka Hana Ka 'Ike, an award-winning construction skills training program for at-risk youth in Hāna, Maui. Ma Ka Hana Ka 'Ike increased the capacity of the Mū'olea community to build a stronger data set, and Hāna youth learned new skills in self-sustenance and sustainability.
- Another survey was done on June 14-15, 2013, with help from TNC, Chris Bird, and Alu Like. Ten surveys were completed and 20 people participated on the first day; and on the second day, 15 surveys were completed and 7 people participated. The group surveyed the 'Opihi Rest Area establishing a baseline for the area that was officially established on February 8, 2014, but has been part of community conversations for many months.
- NMOM board member Claudia Kalaola coordinated the youth of Kamehameha School's Kulia I Ka Pono summer program to learn about and conduct 'opihi monitoring at Mū'olea for 5 Wednesdays from June 5-July 10, 2013. Each week, the program hosted a new group of 30 students. TNC intern Kanoe Steward and Emily Fielding assisted a few times.



### *'Opihi Partnership*

As mentioned, NMOM was central to the formation of the 'Opihi partnership and remains an influential member. Since its inception, partners have surveyed throughout the Hawaiian Archipelago, applying their method that incorporates traditional Hawaiian knowledge with the best scientific methods to support coastal managers in understanding and managing resources in their area. The partners include NMOM, TNC, Hawai'i Institute for Marine Biology (HIMB), Haleakalā National Park, Kīpahulu 'Ohana, 'Āhihi-Kīna'u Natural Area Reserve, Kaho'olawe Island Reserve Commission, Division of Aquatic Resources (DAR), Papahānaumokuākea National Marine Monument (PNMM), and Kahanu Gardens, and in 2013, Texas A&M Corpus Christi, since lead researcher Dr. Christopher Bird transferred there from HIMB.



In 2010, 'Opihi Partnership coordinated a session at the 2010 Hawai'i Conservation Conference. Hank and Walter presented the Mū'olea data from 2008-2010, along with other 'Opihi Partners: 'Āhihi Kīna'u Natural Area Reserve, Kaho'olawe, PMNM, TNC, and HIMB. The results showed the PMNM to be the highest in abundance for 'opihi, followed closely by Hawai'i Island. The islands of Maui and Kaho'olawe ranked third in 'opihi abundance, followed by O'ahu.

From 2009 – 2013, representatives from Mū'olea and TNC participated in cruises to PMNM to conduct 'opihi surveys. In 2009 Hank and Walter from NMOM participated along with TNC staff John Parks and Russell Amimoto; in 2010, Hank participated; in 2011 Brian Villiarimo from NMOM and Emily; in 2012 James Pu and Russell Stoner from Ma Ka Hana Ka 'Ike and Sam Gon from TNC; and in 2013 Brian from NMOM and Kanoe Morishige from TNC.

Dr. Bird reported the results of three years (2009-2011) of ‘opihi monitoring to the board of NMOM on June 21, 2011. The board learned how they compare to other ‘opihi monitored sites in the Hawaiian Archipelago -- basically better than others, but not as good as some. On March 13, 2012 TNC hosted another presentation by Dr. Bird for NMOM in Hāna. He shared findings from his multi-year study of ‘opihi in the Hawaiian Archipelago, including suggestions of how ‘opihi protected areas might enhance ‘opihi populations on each main Hawaiian Island. Results showed that across the Hawaiian Archipelago, Mū‘olea had the third highest abundance of ‘opihi makaiauli and ‘opihi alinalina, and had the second highest abundance of ‘opihi kō‘ele (as it is not present in the Northwestern Hawaiian Islands). However, these results do not represent the abundance of ‘opihi in the past. Survey sites with more ‘opihi per area either have more extensive habitat, lower harvesting pressure, and/or both.

### *‘Opihi Rest Area*

In 2012, NMOM selected the location for a community initiated ‘opihi “rest area”, a 3-year voluntary no-take area along 300 feet of shoreline. Leading up to the meeting, NMOM board members spoke personally with family and friends to explain the rest area concept and address any concerns. Initial community support had been demonstrated with 40 pledges at the Hāna Limu Festival in November 2013. NMOM board members worked to finalize the poster and signage design. TNC reached out to State DAR and DOCARE to ensure their support for community-led voluntary closure.

With the official launch of the rest area in February 8, 2014, outreach material to mark the site and educate the public about the project was added to the new educational kiosk, collaboratively developed by NMOM and TNC, with help from TNC Marine Fellow, Leilani Warren. NMOM and partners will test if the strategy is effective in increasing the abundance of ‘opihi at Mū‘olea. In 2014-2015, Dr. Bird will conduct DNA parentage analysis to determine the effect of the closure on the “rest area” and look for larval “spill-over” in to adjacent habitat.

NMOM Board members Claudia and Hank presented the ‘Opihi Rest Area concept at a community meeting on-site. They shared the history of the place, the reasons for the rest area, and led a discussion which provided an open forum for all in attendance, some of whom were skeptical, to express their opinions. For some attendees, this was their first community meeting. The meeting concluded with all attendees expressing support for the rest area. Everyone worked together with Hank to install the first of three ‘Opihi Rest Area signs on kiawe posts.





To document the level of compliance with the voluntary rest area guidelines, TNC provided an observation report form and protocol for community members to document observed compliance with the voluntary closure. Once collected, this data will be used to understand the effectiveness of outreach efforts and to better understand the biological response on ‘opihi in the rest area. This meeting marked a milestone for the group showed significant progress towards strategic plan objectives.

### **Annual Hāna Limu Festival**

In 2009, NMOM hosted the first Annual Hāna Limu Festival (held at Maka‘alae, Hāna) to focus attention on Hāna’s native *limu* (algae), and caring for marine and cultural resources. Limu is an essential component of the coral reef and intertidal ecosystems. It is also highly valued in Hawaiian culture for food, medicine and ceremony. Because of limu’s cultural importance, people want to *mālama* (care for) the land and sea to ensure the growth of healthy populations of native limu. The festival also aims to improve awareness and appreciation of the unique marine resources of east Maui and inspire community leaders to adopt community-based resource management as a viable alternative to the status quo.

Since October 2010, the event has been held at Kapūeokahi, Hāna. In 2009 and 2010 about 250 people participated. In 2010, NMOM established a scholarship fund in honor of Hāna’s own limu expert and ethnobotanist Dr. Isabella Abbott. Also in 2010, the festival coordination team instituted the use of a “Limu Fest Passport”, patterned after TNC’s Moloka‘i Earth Day. Participants got a stamp in their passport at each of the twelve educational stations sponsored by partners from east Maui and around



the state. After their passports were fully stamped, participants could claim their prize. TNC's role has been to assist NMOM to coordinate educational activities and prizes.

On November 5, 2011, attendance doubled over 2010 levels. Participants commented on how they enjoyed the educational content of the booths manned by many partners: Kīpahulu 'Ohana, Kamaui Aiona and Kahanu Garden, Ewa Beach Limu Project and "Limu Uncles" Henry Chang Wo and Wally Ito, TNC, Jon Mitchell and the Digital Bus, Nicole Davis from NOAA, Darla White from DAR, Dr. Bird, and the featured speaker Dr. Celia Smith of University of Hawai'i at Mānoa.

On November 10, 2012 the festival was attended by about 500 people - local Hāna residents, Maui residents, and Maui visitors. Each year the festival is growing in participation by educators and the public. It is truly a successful event in informing the public of marine resources and limu identification – native or alien – its importance, and cultural use.



On November 8-9, 2013 NMOM hosted the 5<sup>th</sup> Annual Hāna Limu Festival, co-sponsored by TNC and the County of Maui. The event began with a talk-story event on Friday evening for the public to "come hear inspiring stories about our native Hawaiian limu and how community groups are restoring limu and building community managed makai areas from Maui, Lāna'i, Moloka'i and O'ahu." Speakers included Maui Nui Network members as well as Bill Thomas of NOAA, Celia Smith of UH Manoa and Ke'eaumoku Kapu from the Aha Moku Council, a group of *kūpuna* (elders) and Native Hawaiian cultural practitioners designated as advisors to DLNR. Event organizer, Claudia, designed the event to build relationships and share information among the Hāna community, community managed areas, and the Aha Moku Council, to increase positive collaboration for east Maui resource management. The Friday night event was quite popular, drawing over 150 people for a standing-room only crowd at Helene Hall.





On Saturday, an estimated 500 people attended the all-day festival focused on raising awareness of caring for the east Maui coastal and marine environment. The target audience is Hāna and east Maui residents (population 2000). At the Festival, 40 residents pledged to support of the ‘Opihi Rest Area by taking a photo at one of the educational tables.

Partners included Papahānaumokuākea Marine National Monument, Division of Aquatic Resources, NOAA Protected Species and Fisheries Divisions, Digital Bus, Aha Moku Council, Ewa Beach Limu Project, Waihee Limu Restoration Project, University of Hawai‘i, Kipahulu ‘Ohana, Maunalei Ahupua‘a CMMA, Hui Malama O Mo‘omomi, Hawaiian Islands Humpback Whale National Marine Sanctuary, children’s author Tammy Yee, and Hawai‘i Wildlife Fund. NMOM, TNC, and partners provided a variety of fun and interactive activities including storytelling, native limu identification, intertidal touch tank, ‘opihi rest area pledge photo booth, ulua gyotaku (fish art), and a “Got Gonads?” science activity. Chefs prepared ‘ono (delicious) food with fish and limu. Akakū community television filmed the event and the Hāna High School science class assisted throughout the day.

## **Reef & Reef Fish Monitoring**

### *Surveys*

On September 8-10, 2009 and July 12-15, 2010 TNC’s dive team (Kydd Pollock, Russell Amimoto, Dwayne Minton, Eric Conklin, and Roxie Sylva) conducted reef monitoring surveys along the coast of Mū‘olea, aboard Captain Earl Smith’s boat. From August 22-23, 2012, TNC’s dive team (Kydd, Eric, and Roxie) completed 12 transects in Waikaloa, Hāna, where the marine habitat closely resembles that of Mū‘olea. Together, these surveys provide NMOM information to compare Hāna areas that have different levels of community engagement and access. The local community closely watches both areas.

### *Reports*

TNC and NMOM reported 2009 Mū‘olea reef monitoring data to the Hāna community at the Hāna Youth Center on February 10, 2010, to about 40 people. Hank and Walter gave an overview of the marine plan goals and objectives, TNC’s Marine Science Director Eric Conklin shared the survey findings, and potluck meal was shared by all. TNC reported 2010 Mū‘olea reef monitoring data to the Hāna community on May 13, 2011 at the Hāna Bay Pavilion. Hank, Walter, and Brian started the evening off speaking about their hopes for a more abundant and healthy reefs for future generations. Roxie Sylva introduced TNC’s marine program, and explained that any



Hāna area data is generalized and no specific place names were used. Russell of TNC gave a powerpoint summarizing the data collected. The board expressed their appreciation and delight to have a “Hāna girl” working with the community as a professional in coral reef conservation in Hāna. About 20 people attended the event. The comparative statewide biomass data showed Mū’olea is comparable to many marine protected areas in the main Hawaiian Islands, with room for improvement when compared to historic levels. Mū’olea also has a high biomass of large reproductive fish. Many questions came up about how to measure pollution from the unlined county dump and sewage injection wells and septic systems and their effects on the marine life and coral reefs of Hāna Bay. In 2013, TNC marine scientist Dwayne Minton wrote a report summarizing and analyzing the data from the three surveys. Russell and Roxie reviewed the report with NMOM on April 4, 2014 in Hāna.

### *Fisherman’s Catch Per Unit Effort and Reproductive Status Documentation*

On February 8, 2014, TNC delivered and reviewed catch-per-unit-effort forms and materials that were co-developed with NMOM. Hank of NMOM, TNC marine fellow Leilani Warren, TNC’s science and community teams, and Eva Schemmel of the University of Hawaii contributed to the form. The back of the form is an environmental observation sheet developed by Pelika Bertelmann of Sea Grant on Hawai’i Island which integrates traditional Hawaiian science by including notations of moon phases and other environmental observation. NMOM fishermen and managers plan to use the forms to document and predict fish spawning, behavior and other lunar and seasonal events. Once the information is gathered, the community can better manage fishing in traditional ways, such as not catching fish species while they are spawning. The system includes data sheets, scales and a ruler for fish and gonads. As other fishermen show interest, Hank will train them in how to document the species, weight, length, and reproductive status of their catch.

## **Traditional Ecological Knowledge Workshop and Interviews**

### *Workshop*

On November 2-3, 2012 Roxie, Manuel Mejia, and former TNC Marine Fellow, Marion Ano facilitated the Traditional Ecological Knowledge (a.k.a. Talk Story) Workshop in collaboration with NMOM. The workshop was designed to train youth to interview the kūpuna in their families in order to learn about and preserve their own histories and traditions, as well as contribute to ahupua’a management at Mū’olea.



The desired outcome of the workshop was for the traditional ecological knowledge of the people of the area to be incorporated into NMOM management frameworks: outreach materials, educational events/activities involving the community, “code of conduct,” and “access and use” guidelines. Four youth were trained in using media equipment (cameras, video cameras, and Mac software: iMovie, iPhoto, and Garageband) to conduct their own interviews within their families and produce a movie. One participant conducted six interviews during the workshop, and he was able to create two final movies (which were showed at the following week’s Limu Festival).

### *Interviews*

On February 28, 2013, Roxie and Manuel conducted interviews with NMOM board members, Bruce Lind and Terry Lee Poaipuni, and Mū’olea community member Andrew Park. Each interview was about 45 minutes, including set up, filming, and break-down of equipment. On April 18, 2013, Emily and Manuel interviewed NMOM board member Pomai Konohia. The transcripts of all interviews and the video and audio files are given to NMOM.



## **Maui Nui Community Managed Makai Areas Learning Network**

### *Establishment*

NMOM board members were integral to the development and formation of the Maui Nui Community Managed Makai Area Learning Network. The first Meeting “Living today, sustaining the future” was held in Ke’anae, Maui, September 7-9, 2012. Three NMOM members participated, Hank, Claudia, and Scott Crawford. TNC and the Maui Nui Marine Resources Council and six community groups participated: NMOM, Polanui Hiu (from Lāhaina), Wailuku Community Managed Marine Area,







Kīpahulu ‘Ōhana, Maunalei Ahupua‘a (Lāna‘i), and Hui Mālama O Mo‘omomi (Moloka‘i). The goal of the meeting was to create a Maui Nui “learning from doing” network of communities that are active in managing local near shore ocean resources. Participants enjoyed two guest speakers, William Aila, Chair Board of Land and Natural

Resources, and Uncle Mac Poepoe, Hui Mālama O Mo‘omomi. The objectives of the meeting were to: 1) share about local near shore resource management, 2) discuss how we learn and what we need, 3) understand what a learning network could be like for Maui Nui, and 4) establish/build the foundation for a learning network. At the meeting, site representatives developed a foundational agreement for establishing the learning network, including vision, values, benefits, interests, commitments, activities, and goals.

A follow-up meeting was held on December 2, 2012 in Kahului to finalize the agreement language. Following this, the NMOM board agreed to be a founding member and establish the learning network. Claudia signed the agreement on behalf of NMOM on February 22-23, 2013 at Maunalei Ahupua‘a on the island of Lāna‘i. The Network seeks to protect and restore the healthy coastal and marine ecosystems that the people of Maui Nui depend on. Our purpose is to share and learn from our diverse experiences, lessons, and best practices to help member sites to mālama specific makai areas.



### *NMOM chairs the Network in September 2014-2015*



NMOM continues to participate fully in the Network, with Claudia attending the September 6-8, 2013 meeting at Polanui, Lāhaina, and Claudia and Walter attending the February 21-22, 2014 meeting also at Polanui. At the September meeting, the group selected six chairpersons from names in a hat to lead the Maui Nui Network

each year for six years. The first chairperson selected was Ekolu Lindsey of Polanui Hiu. NMOM was selected to chair the second year, beginning after the September 2014 meeting, through September 2015.

## Strategic Planning & Information Kiosk

### *Process*

In 2012, NMOM sought assistance from TNC to create a strategic plan to manage the public lands at Mū'olea. Two meetings were held at Kanewai under the Milo tree, the first on April 7, 2012, and the second on July 28, 2012. The process was facilitated by Manuel and Emily. The plan addresses land, freshwater, cultural, and ocean management needs. It updates the marine CAP created in February 2009. TNC and NMOM collaborated to draft the plan



language and compile maps and photographs. Geoff Moore of Silvermoon Design did the plan layout. The board provided several rounds of edits in 2012 and 2013, and the draft was considered final in July 2013.

### *Capacity Assessment*

On August 8<sup>th</sup>, 2012 Roxie attended NMOM's monthly board meeting and led the board in a discussion to analyze their capacity assessment. Overall, the board rated themselves as being "medium" for the project resource measures as people (staff leadership and multidisciplinary team), internal resources (institutional leadership and funding), and external resources (social/legal framework for conservation and community and constituency support).

### *Information Kiosk*

Designed by Hank and Ma Ka Hana Ka 'Ike Executive Director Rick Rutiz, a covered, two-sided community bulletin board was built at Mū'olea with labor donated by non-profit Hāna partner, Ma Ka Hāna Ka 'Ike in July and August 2013. The design and natural materials were locally inspired and





the kiosk fits into the landscape as if it has always been there. NMOM now has a designated location to post information concerning the community managed makai area.

### *Endangered Grass*

One of the activities in the strategic plan is to give the endangered grass (*Ischaemum byrone*) that grows at Mū'olea a Hawaiian name. To support this process, on May 15-16, 2013 Sam Gon, TNCs Senior Scientist and Cultural Advisor met with NMOM to discuss the process to officially name the endangered grass. The rare grass is scattered in coastal sites on east Maui (and other islands) including some offshore islets.

